

What is claimed is:

1. An image processing apparatus, comprising:

specific hierarchy encoding means for encoding a specific hierarchy image data item, among image data items in respective hierarchies produced by dividing image data to be encoded, by performing an encoding process for an intra picture, or an encoding process for a non-intra picture; and

control means for controlling the encoding process performed by the specific hierarchy encoding means; wherein

when the encoding process for the intra picture is to be performed, the specific hierarchy encoding means performs the encoding process for the intra picture after subtracting reference data having a value other than zero from the specific hierarchy image data item.

2. An image processing apparatus according to claim 1, further comprising

multiplexing means for multiplexing the reference data with an output of the specific hierarchy encoding means.

3. An image processing apparatus according to claim 1, further comprising

storage means for storing the reference data.

0924015.080701

4. An image processing apparatus according to claim 1, further comprising

average pixel value detecting means for detecting an average pixel value of the specific hierarchy image data item as the reference data.

5. An image processing apparatus according to claim 1, wherein

the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and

the specific hierarchy image data item is the higher hierarchy image data item.

6. An image processing apparatus according to claim 5, further comprising

higher hierarchy encoding means for encoding the higher hierarchy image data item by performing the encoding process for the intra picture or the encoding process for the non-intra picture, wherein

when the encoding process for the intra picture is to be performed, the higher hierarchy encoding means performs the

09524015-080701

encoding process for the intra picture without subtracting the reference data from the specific hierarchy image data item.

7. An image processing apparatus according to claim 1, further comprising

division means for dividing the image data to be encoded to produce the image data items in hierarchies.

8. An image processing apparatus according to claim 1, wherein

when the encoding process for the inter picture is to be performed, the specific hierarchy encoding means performs the encoding process for the intra picture after subtracting image data corresponding to a previous frame from the image data item in a given hierarchy.

9. An image processing apparatus, comprising:

determination means for determining whether specific hierarchy encoded data item, encoded by performing an encoding process for an intra picture or an encoding process for a non-intra picture on a specific hierarchy image data item among image data items in respective hierarchies produced by dividing image data to be encoded, is encoded by performing the encoding process for the intra picture or the encoding process for the non-intra picture;

0094015-080701

and

specific hierarchy decoding means for decoding the specific hierarchy image data item from the specific hierarchy encoded data item based on a result of determination by the determination means, wherein

when a decoding process for the intra picture is to be performed, the specific hierarchy decoding means performs the decoding process on the specific hierarchy encoded data item using reference data having a value other than zero.

10. An image processing apparatus according to claim 9, further comprising

separation means for separating the specific hierarchy encoded data item and the reference data from a stream in which the specific hierarchy encoded data item and the reference data are multiplexed.

11. An image processing apparatus according to claim 9, further comprising

storage means for storing the reference data.

12. An image processing apparatus according to claim 9, wherein

the image data items in hierarchies produced by dividing

09924015.080701

the image data to be encoded include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and

the specific hierarchy image data item is the higher hierarchy image data item.

13. An image processing apparatus according to claim 12, further comprising

higher hierarchy image decoding means for performing the decoding process for the intra picture or a decoding process for the non-intra picture on the higher hierarchy encoded data item produced by performing the encoding process for the intra picture or the encoding process for the non-intra picture on the higher hierarchy image data item, thereby decoding the higher hierarchy image data item, wherein

when the decoding process for the intra picture is to be performed, the higher hierarchy image decoding means performs the decoding process for the intra picture on the higher hierarchy encoded data item without using the reference data.

14. An image processing apparatus according to claim 12, further comprising

encoded image decoding means for decoding the image data

09924015-080701

to be encoded based on the higher hierarchy image data item and the specific hierarchy image data item.

15. An image processing method, comprising the steps of:
dividing image data to be encoded to produce image data items in respective hierarchies; and

encoding a specific hierarchy image data item among the image data items in respective hierarchies by performing an encoding process for an intra picture or an encoding process for a non-intra picture; wherein

when the encoding process for the intra picture is to be performed, the encoding process for the intra picture is performed in the encoding step after subtracting reference data having a value other than zero from the specific hierarchy image data item.

16. An image processing method according to claim 15, further comprising the step of

multiplexing the reference data with an output of the encoding step.

17. An image processing method according to claim 15, further comprising the step of

detecting an average pixel value of the specific hierarchy image data item as the reference data.

03924015-000701

the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and

19. An image processing method, comprising the steps of:
determining whether specific hierarchy encoded data item,
encoded by performing an encoding process for an intra picture or
an encoding process for a non-intra picture on a specific hierarchy
image data item among image data items in respective hierarchies
produced by dividing image data to be encoded, is encoded by
performing the encoding process for the intra picture or the
encoding process for the non-intra picture; and

decoding the specific hierarchy image data item from the specific hierarchy encoded data item based on a result of determination in the determining step; wherein

when a decoding process for the intra picture is to be performed, in the step of decoding the specific hierarchy image data item the decoding process is performed on the specific

hierarchy encoded data item using reference data having a value other than zero.

20. An image processing method according to claim 19, further comprising the step of

separating the specific hierarchy encoded data item and the reference data from a stream in which the specific hierarchy encoded data item and the reference data are multiplexed.

21. An image processing method according to claim 19, wherein

the image data items in hierarchies include a basic hierarchy image data item and a higher hierarchy image data item obtained by subtracting the basic hierarchy image data item from the image data to be encoded, and

the specific hierarchy image data item is the higher hierarchy image data item.

22. An image processing method according to claim 21, further comprising the step of

performing the decoding process for the intra picture or a decoding process for the non-intra picture on the higher hierarchy encoded data item produced by performing the encoding process for the intra picture or the encoding process for the non-intra

0000015-000701

picture on the higher hierarchy image data item, thereby decoding the higher hierarchy image data item, wherein

when the decoding process for the intra picture is to be performed, in the step of decoding the higher hierarchy image data item the decoding process for the intra picture is performed on the higher hierarchy encoded data item without using the reference data.

23. An image processing method according to claim 21, further comprising the step of

decoding the image data to be encoded based on the higher hierarchy image data item and the specific hierarchy image data item.

05924015-1080701